

Date: Wed, 4 May 94 04:30:25 PDT  
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>  
Errors-To: Ham-Space-Errors@UCSD.Edu  
Reply-To: Ham-Space@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Space Digest V94 #113  
To: Ham-Space

Ham-Space Digest                      Wed, 4 May 94                      Volume 94 : Issue 113

Today's Topics:

                  \* SpaceNews 02-May-94 \*  
                  ANS-120 BULLETINS  
                  Russian space station MIR  
                  SatTrack  
                  Two-Line Orbital Element Set Format

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>  
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Mon, 2 May 1994 12:09:56 MDT  
From: ihnp4.ucsd.edu!library.ucla.edu!psgrain!nntp.cs.ubc.ca!alberta!ve6mgs!  
usenet@network.ucsd.edu  
Subject: \* SpaceNews 02-May-94 \*  
To: ham-space@ucsd.edu

SB NEWS @ AMSAT \$SPC0502  
\* SpaceNews 02-May-94 \*

BID: \$SPC0502

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SpaceNews  
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MONDAY MAY 2, 1994

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

★ AO-27 OPERATING NOTES ★

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AO-27 has had its FM transponder in operation on the weekends when the spacecraft is in sunlight. The transponder on AO-27 receives on an uplink frequency of 145.850 MHz FM, and downlinks on 436.800 MHz FM. As of yet, no official operating schedule has been announced, but that hasn't stopped amateur experimenters from communicating with others through the satellite.

As an example, John, N8QGC, has been working stations on AO-27 all the way from his Detroit area QTH to as far away as Mexico City, Mexico, Baffin Island, and the North West Territories. N8QGC usually works AO-27 from a mobile station using 10 watts of transmitter power from his Kenwood TM-731A and a homebrew 1/4 wave antenna. Even with his low power and small antenna system, John has no problem securing a strong signal into the satellite. He has even tried accessing the satellite with his ICOM IC-U2AT running 2.5 watts and a rubber duck antenna and also had a good uplink signal (especially during periods when larger stations were not clobbering the satellite uplink with excessively strong signals). Due to the extreme sensitivity of this satellite, uplink ERP should be kept below 25 watts.

AO-27 control station Mark, N4TPY, has reported that the satellite has a transponder output power of between 2 and 3 watts at the present time, and as such, is nearly impossible to receive on a HT with a rubber duck. Omni-directional antennas have provided only limited results.

N8QGC uses a 6 element KLM 440-6X yagi rated at 8.9 dB gain to copy AO-27's downlink signals. He aims it out his car window and receives the satellite well. The doppler shift experienced when communicating through this satellite can be quite high. John usually starts listening for AO-27 at 436.805 MHz, and tracks it down to 436.790 MHz at LOS.

Santoyo V. Ramon, XE1KK, of Mexico City has reported hearing Spanish speaking stations through AO-27 with very strong signals. They are not hams, nor are they hearing the satellite downlink. He believes they are located in the Caribbean zone, probably Cuba or Puerto Rico, and have been heard talking about union elections. He is actively tracking down the source of these signals.

[Info via N8QGC, XE1KK, and ANS]

\* KEPLERIAN DATA AVAILABLE \*

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Up-to-date Keplerian data in the NASA 2-line format is available via the Internet at archive.afit.af.mil (129.92.1.66) using anonymous ftp. Files such as amateur.tle, glonass.tle, gorizont.tle, gps-ops.tle, gps.tle, tvro.tle, visual.tle, and weather.tle are located in the /pub/space subdirectory at this site.

\* OSCAR-11 NEWS \*

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The Digitalker has been activated on the UoSAT-OSCAR-11 satellite. UO-11 has an FM downlink on 145.826 MHz, and the voice messages are interspersed with telemetry and news bulletins sent at 1200 bps using AFSK modulation.

\* MIR NEWS \*

=====

James, G1HJH, of Shoreham by Sea, West Sussex, England provides the following listing of messages contained on the Mir Personal Message System on 18-Apr-94:

Msg #	Stat	Date	Time	To	From	@ BS	Subject
2273	PR	04/17/94	10:34	ALL	N6JLH		MIR Keps 4-14 UTC
2272	P	04/16/94	11:33	R0MIR	N7YRV		Hi
2271	P	04/16/94	11:31	W6KZW	WD6GYU		Hello de Manton!
2270	P	04/16/94	10:59	VK3CFI	VK3ZGL		hello maggie
2269	P	04/16/94	09:58	N7QME	N7TTQ		hi hhere
2268	PR	04/16/94	09:57	R0MIR	N7TTQ		greetings from Tigard, OR
2267	P	04/15/94	23:05	R0MIR	F10KN		** DOBRI VIETCHERE **
2266	PR	04/15/94	14:18	R0MIR	KB2MVN		School Greetings
2265	P	04/15/94	14:10	R0MIR	KD6CLO		QSL CARD
2264	PR	04/15/94	12:44	ALL	KB2MVN		CALLING CQ.....
2265	P	04/18/94	01:05	R0MIR	G1HJH		HOPE ALL IS FINE

5449 Bytes free

Next message Number 2274

\* OSCAR-13 SCHEDULE \*

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The following is the latest AO-13 operating schedule:

M QST \*\*\* AO-13 TRANSPONDER SCHEDULE \*\*\* 1994 Apr 07-Jul 11

Mode-B : MA 0 to MA 170 |

Mode-BS : MA 170 to MA 218 |

Mode-S : MA 218 to MA 220 |<- S beacon only

Mode-S : MA 220 to MA 230 |<- S transponder; B trsp. is OFF

Mode-BS : MA 230 to MA 250 | Blon/Blat 230/-5

Mode-B : MA 250 to MA 256 |  
Omnis : MA 250 to MA 120 | Move to attitude 180/0, Jul 11

[Info via G3RUH]

\* FO-20 SCHEDULE \*

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The Fuji-OSCAR-20 satellite will be operating in Mode JA between 11-May-94 at 06:54 UTC through 18-May-94 at 07:20 UTC. The packet mailbox is active at other times.

[Info via Kazu Sakamoto, JJ1WTK]

\* FEEDBACK/INPUT WELCOMED \*

=====

Mail to SpaceNews should be directed to the editor (John, KD2BD) via any of the following paths:

FAX : 1-908-747-7107  
PACKET : KD2BD @ N2KZH.NJ.USA.NA  
INTERNET : kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD  
Department of Engineering and Technology  
Advanced Technology Center  
Brookdale Community College  
Lincroft, New Jersey 07738  
U.S.A.

<<= SpaceNews: The first amateur newsletter read in space! -=>>

/EX

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John A. Magliacane, KD2BD \* /\ \* Voice : 1-908-224-2948  
Advanced Technology Center |/\| Packet : KD2BD @ N2KZH.NJ.USA.NA  
Brookdale Community College |/\| Internet: kd2bd@ka2qhd.ocpt.ccur.com  
Lincroft, NJ 07738 \* \/\ \* Morse : -. -.. ..--- -... -..

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Date: Mon, 2 May 1994 17:06:48 MDT  
From: ihnp4.ucsd.edu!library.ucla.edu!psgrain!nntp.cs.ubc.ca!alberta!ve6mgs!  
usenet@network.ucsd.edu  
Subject: ANS-120 BULLETINS

To: ham-space@ucsd.edu

SB SAT @ AMSAT \$ANS-120.01  
AO-13 OPS NET SCHEDULE

HR AMSAT NEWS SERVICE BULLETIN 120.03 FROM AMSAT HQ  
SILVER SPRING, MD APRIL 30, 1994  
TO ALL RADIO AMATEURS BT  
BID: \$ANS-120.01

Current AMSAT Operations Net Schedule For AO-13

AMSAT Operations Nets are planned for the following times. Mode-B Nets are conducted on AO-13 on a downlink frequency of 145.950 MHz. If, at the start of the OPS Net, the frequency of 145.950 MHz is being used for a QSO, OPS Net enthusiasts are asked to move to the alternate frequency of 145.955 MHz.

Date	UTC	Mode	Phs	NCS	Alt NCS
09-May-94	0000	B	175	W5IU	WA5ZIB
14-May-94	1700	B	167	WA5ZIB	W5IU
21-May-94	2130	B	185	VE2LVC	W9ODI

Any stations with information on current events would be most welcomed. Also, those interested in discussing technical issues or who have questions about any particular aspect of OSCAR statellite operations, are encouraged to join the OPS Nets. If neither of the Net Control Stations show up, any participant is invited to act as the NCS.

Slow Scanners are invited to join the SSTV sessions on AO-13. The frequency is 145.955 MHz. The net meets at 45 minutes before Mode S, and on Mode B following Mode S on Saturdays and Sundays. Join those sessions or convey your wishes for other SSTV skeds to wb6llo@amsat.org, and he will coordinate your efforts.

/EX

SB SAT @ AMSAT \$ANS-120.02  
WEEKLY OSCAR STATUS REPORTS

HR AMSAT NEWS SERVICE BULLETIN 120.04 FROM AMSAT HQ  
SILVER SPRING, MD APRIL 30, 1994  
TO ALL RADIO AMATEURS BT  
BID: \$ANS-120.02

Weekly OSCAR Status Reports: 30-APR-94

AO-13: Current Transponder Operating Schedule:  
M QST \*\*\* AO-13 TRANSPONDER SCHEDULE \*\*\* 1994 Apr 07-Jul 11

Mode-B : MA 0 to MA 170 |  
Mode-BS : MA 170 to MA 218 |  
Mode-S : MA 218 to MA 220 |<- S beacon only  
Mode-S : MA 220 to MA 230 |<- S transponder; B trsp. is OFF  
Mode-BS : MA 230 to MA 250 | Blon/Blat 230/-5  
Mode-B : MA 250 to MA 256 |  
Omnis : MA 250 to MA 120 | Move to attitude 180/0, Jul 11  
[G3RUH/DB20S/VK5AGR]

F0-20: The following is the current schedule for transponder operations:

ANALOG MODE:

11-May-94 6:54 -to- 18-May-94 7:20 UTC

Digital mode: Unless otherwise noted above.

[Kazu Sakamoto (JJ1WTK) qga02014@niftyserve.or.jp]

K0-25: N7RYW has noticed that K0-25 started to become very difficult for him to uplink to. This began for him over a week ago. At first, he attributed the difficulty to the nearness of A0-21. This week he noticed that A0-21 was far out of sight of K0-25, and yet the trouble remained. N7RYW does not believe that his keys for A0-21 are off and thus he feels there might be something bothering K0-25's receiver. He is wondering if the receiver was switched to the secondary frequency. If so, it may be hard to find, as it was when K0-25 was first activated. In that instance, it was found to be off from its published frequency. N7RWY will be testing various uplinks over the next few days to see if he can find where its secondary uplink frequency is located. If there any other K0-25 users have had problems, please send N7RYW a note at his INTERNET address of n7ryw@teleport.com. In a further status report received from WH6I, he also notes that K0-25 has been deaf with many stations thinking that A0-21 was the cause of the desensing of K0-25's receiver. However, analysis of the telemetry and many "re-tries" by some stations with a lot of power seems to indicate that desense is not the problem. In fact K0-25 has been deaf even when A0-21 is not near it. At the moment it seems that there might be a software problem, or perhaps the receiver is on a different (unknown) frequency. [N7RYW & WH6I]

A0-16: Working well. [WH6I]

L0-19: Operating normally. [WH6I]

K0-23: Operating Normally. [WH6I]

RS-10/11: Operating normally with very strong signals. [ZS6A0P]

MIR: N0XCZ reports that MIR's Personal Bulletin Board System (PBBS) is quite active but it appears to be running with low power. Stations can be heard but with weak signals. The MIR PBBS can be heard and worked on a frequency of 145.550 MHz, FM, simplex. [N0XCZ]

The AMSAT NEWS Service (ANS) is looking for volunteers to contribute weekly OSCAR status reports. If you have a favorite OSCAR which you work on a regular basis and would like to contribute to this bulletin, please send your observations to WD0HHU at his CompuServe address of 70524,2272, on INTERNET at wd0hhu@amsat.org, or to his local packet BBS in the Denver, CO area, WD0HHU @ W0LJF.#NECO.CO.USA.NOAM. Also, if you find that the current set of orbital elements are not generating the correct AOS/LOS times at your QTH, PLEASE INCLUDE THAT INFORMATION AS WELL. The information you provide will be of value to all OSCAR enthusiasts.

/EX

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Date: 3 May 1994 16:05:57 -0400  
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!howland.reston.ans.net!  
news.cac.psu.edu!news.pop.psu.edu!psuvax1!news.cc.swarthmore.edu!  
netnews.upenn.edu!news.amherst.edu!not-for-mail@network.ucsd.  
Subject: Russian space station MIR  
To: ham-space@ucsd.edu

Can anyone tell me what MIR's uplink and downlink frequencies are, how often they are likely to transmit, and whether there are any hams aboard at this time?

Thanks.

-Jared Hertzberg N2YES  
jbhertz@amhux3.amherst.edu

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Date: 3 May 1994 16:27:03 -0400  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!news.ans.net!hp81.prod.aol.net!  
search01.news.aol.com!not-for-mail@network.ucsd.edu  
Subject: SatTrack  
To: ham-space@ucsd.edu

In article <1994Apr4.203441.4071@news.vanderbilt.edu>,  
HEAGYWS@ctrvax.Vanderbilt.Edu () writes:

Win - I have the phone number for some BBS's that carry up to date Keplerian elements - where are you located?

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Date: Mon, 2 May 1994 18:51:35 MDT  
From: ihnp4.ucsd.edu!library.ucla.edu!psgrain!nntp.cs.ubc.ca!alberta!ve6mgs!

usenet@network.ucsd.edu  
Subject: Two-Line Orbital Element Set Format  
To: ham-space@ucsd.edu

As a service to the satellite user community, the following description of the NORAD two-line orbital element set format is uploaded to sci.space.news and rec.radio.info on a monthly basis. The most current orbital elements from the NORAD two-line element sets are carried on the Celestial BBS, (513) \*253-9767\*, and are updated daily (when possible). Documentation and tracking software are also available on this system. The Celestial BBS may be accessed 24 hours/day at 300, 1200, 2400, 4800, or 9600 bps using 8 data bits, 1 stop bit, no parity. In addition, element sets (also updated daily) and some documentation and software are also available via anonymous ftp from archive.afit.af.mil (129.92.1.66) in the directory pub/space.

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Data for each satellite consists of three lines in the following format:

AAAAAAAAAAAA  
1 NNNNNNU NNNNNAAAA NNNNN.NNNNNNNNN +.NNNNNNNNN +NNNNNN-N +NNNNNN-N N NNNNN  
2 NNNNN NNN.NNNN NNN.NNNN NNNNNNNN NNN.NNNN NNN.NNNN NN.NNNNNNNNNNNNNNN

Line 0 is a eleven-character name.

Lines 1 and 2 are the standard Two-Line Orbital Element Set Format identical to that used by NORAD and NASA. The format description is:

Line 1	
Column	Description
01-01	Line Number of Element Data
03-07	Satellite Number
10-11	International Designator (Last two digits of launch year)
12-14	International Designator (Launch number of the year)
15-17	International Designator (Piece of launch)
19-20	Epoch Year (Last two digits of year)
21-32	Epoch (Julian Day and fractional portion of the day)
34-43	First Time Derivative of the Mean Motion or Ballistic Coefficient (Depending on ephemeris type)
45-52	Second Time Derivative of Mean Motion (decimal point assumed; blank if N/A)
54-61	BSTAR drag term if GP4 general perturbation theory was used. Otherwise, radiation pressure coefficient. (Decimal point assumed)
63-63	Ephemeris type
65-68	Element number
69-69	Check Sum (Modulo 10) (Letters, blanks, periods, plus signs = 0; minus signs = 1)



Line 2	
Column	Description
01-01	Line Number of Element Data
03-07	Satellite Number
09-16	Inclination [Degrees]
18-25	Right Ascension of the Ascending Node [Degrees]
27-33	Eccentricity (decimal point assumed)
35-42	Argument of Perigee [Degrees]
44-51	Mean Anomaly [Degrees]
53-63	Mean Motion [Revs per day]
64-68	Revolution number at epoch [Revs]
69-69	Check Sum (Modulo 10)

All other columns are blank or fixed.

Example:

```
NOAA 6
1 11416U      86 50.28438588 0.00000140      67960-4 0 5293
2 11416  98.5105  69.3305 0012788  63.2828 296.9658 14.24899292346978
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Dr TS Kelso	Assistant Professor of Space Operations
tkelso@afit.af.mil	Air Force Institute of Technology

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End of Ham-Space Digest V94 #113  
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